

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
31 January 2002 (31.01.2002)

PCT

(10) International Publication Number
WO 02/09090 A2(51) International Patent Classification⁷:

G10L

(74) Agent: MILLERS, David; Patent Offices of David
Millers, 6560 Ashfield Court, San Jose, CA 95120 (US).

(21) International Application Number: PCT/US01/22540

(81) Designated States (national): CN, JP, KR.

(22) International Filing Date: 17 July 2001 (17.07.2001)

(84) Designated States (regional): European patent (AT, BE,
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE, TR).

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

09/626,046

26 July 2000 (26.07.2000) US

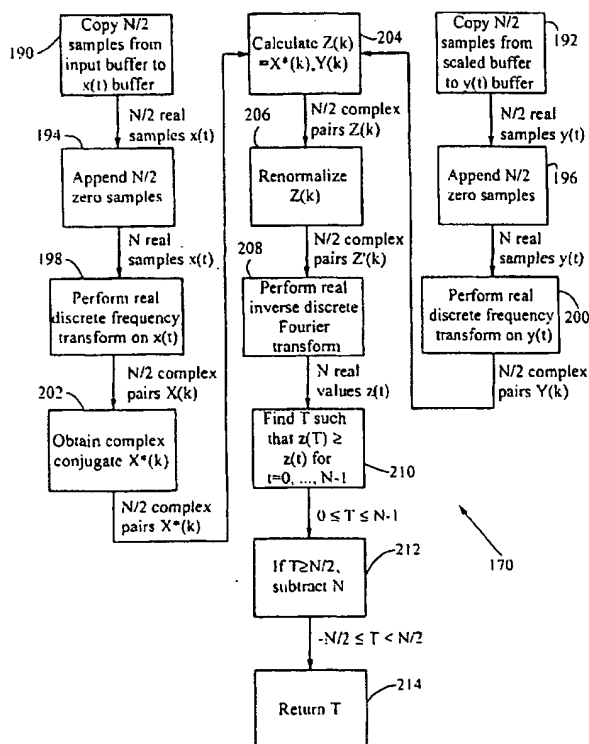
Published:

— without international search report and to be republished
upon receipt of that report(71) Applicant: SSI CORPORATION [JP/JP]; Shinjuku
Sumitomo Bldg. 40th Floor, 2-6-1 Nishi-Shinjuku, Shin-
juku-ku, Tokyo, Tokyo 163-0264 (JP).For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(71) Applicant and

(72) Inventor: SELLY, Roger [GB/US]; 3385 Sout Court, Palo
Alto, CA 94303 (US).

(54) Title: CONTINUOUSLY VARIABLE TIME SCALE MODIFICATION OF DIGITAL AUDIO SIGNALS



(57) Abstract: A time scale modification produces an output signal having a different playback rate but the same pitch as an input digital audio signal. The method overlaps sample blocks in the input signal with sample blocks in the output signal to compress the signal. A correlation function is calculated for each possible overlap, and the overlap producing the highest correlation is chosen. A computationally efficient method for calculating the correlation function computes a discrete frequency transform of the input and output sample blocks, calculates the correlation, and then performs an inverse frequency transform of the correlation function, which has a maximum at the optimal overlap. A method for time scale modification of a multi-channel digital audio signal processes each channel independently. The listener integrates the different channels and perceives a high quality multi-channel signal.